



COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DRAFT PERMIT

TO WITHDRAW GROUNDWATER IN THE
EASTERN VIRGINIA GROUNDWATER MANAGEMENT AREA

Permit Number: GW0037402

Effective Date: XXXXXXXX XX, 2023

Expiration Date: XXXXXXXX XX, 2038

Pursuant to the Ground Water Management Act of 1992 (Section 62.1-254 et seq. of the Code of Virginia) and the Groundwater Withdrawal Regulations (Regulations) (9VAC25-610), the Department of Environmental Quality hereby authorizes the Permittee to withdraw and use groundwater in accordance with this permit.

Permittee Cintas Corporation

Facility Cintas Portsmouth #391

Facility Address 2707 Smithfield Road

Portsmouth, VA 23702

The Permittee's authorized groundwater withdrawal shall not exceed:

19,500,000 gallons per year,
2,300,000 gallons per month,

The permitted withdrawal will be used to provide water for the business operation of laundering soiled textiles and uniforms. Other uses are not authorized by this permit.

The Permittee shall comply with all conditions and requirements of the permit.

By direction of the Department of Environmental Quality, this Permit is granted by:

Signed _____

Scott Morris, DBA, P.E.
Director, Water Division

Date _____

This permit is based on the Permittee's application submitted on October 12, 2022, and subsequently amended to include supplemental information provided by the Permittee. The following are conditions that govern the system set-up and operation, monitoring, reporting, and recordkeeping pertinent to the Regulations.

Part I Operating Conditions

A. Authorized Withdrawal

1. The withdrawal of groundwater shall be limited to the following wells identified in the table below. Withdrawals from wells not included in Table 1 are not authorized by this permit and are therefore prohibited. 9VAC25-610-140 A

Table 1

Owner Well Name	DEQ Well #	Well Depth (ft bls)	Screen Intervals	Aquifer	Latitude	Longitude	Datum
RUS	220-00051	700	680-700	Potomac	36° 47' 41.4"	-76° 20' 25.26"	NAD83

2. Any actions that result in a change to the status, construction, or pump intake setting of wells included in this permit must be pre-approved by the Department of Environmental Quality (Department or DEQ) in writing prior to implementing the change and a revised GW-2 Form must be submitted to the Department within 30 days after the physical construction of a well is altered or the pump intake setting has been changed. If changes are a result of an emergency, notify the Department within 5 days from the change. 9VAC25-610-140 C

B. Pump Intake Settings

1. The Permittee shall not place a pump or water intake device lower than the top of the uppermost confined aquifer that a well utilizes as a groundwater source or lower than the bottom of an unconfined aquifer that a well utilizes as a groundwater source in order to prevent dewatering of the aquifer, loss of inelastic storage, or damage to the aquifer from compaction. 9VAC25-610-140 A 6
2. Pump settings in individual wells are limited as follows. Any change in the pump setting must receive prior approval by the Department.

Owner Well Name	DEQ Well #	Max Pump Setting (feet below land surface)
RUS	220-00051	650

C. Reporting

1. Water withdrawn from the well shall be recorded monthly at the end of each month and reported to the Department, in paper or electronic format, on a form provided by the Department by the tenth (10th) day of each January, April, July and October for the respective previous calendar quarter. Records of water use shall be maintained by the Permittee in accordance with Part III.F, 1 through 5 of this permit. 9VAC25-610-140 A 9

2. The Permittee shall report any amount in excess of the permitted withdrawal limit by the fifth (5th) day of the month following the month when such a withdrawal occurred. Failure to report may result in compliance or enforcement activities. 9VAC25-610-140 C
3. The following is a summary of reporting requirements for specific facility wells:

Owner Well Name	DEQ Well #	Reporting Requirements
RUS	220-00051	Water Use

D. Water Conservation and Management Plan

1. The Water Conservation and Management Plan (WCMP) submitted in the application received [date] and subsequently amended and then approved by the Department is incorporated by reference into this permit and shall have the same effect as any condition contained in this permit and may be enforced as such.
2. By the end of the first year of the permit cycle [date] the Permittee shall submit documentation to the Department that the leak detection and repair program defined in the WCMP has been initiated. This documentation shall include activities completed during the first year of the permit term. 9VAC25-610-100 B
3. As soon as completed but not later than the end of the second year of the permit cycle [date] the Permittee shall submit to the Department results of an audit of the total amount of groundwater used in the distribution system and operational processes. This documentation shall include any resulting changes to the leak detection and repair program in the WCMP. 9VAC25-610-100 B
4. A report on the plan's effectiveness in reducing water use, including revisions to those elements of the WCMP that can be improved and addition of other elements found to be effective based on operations to date shall be submitted by the end of years five [date] and ten [date] of the permit term. These reports shall include as appropriate: 9VAC25-610-140 C
 - a. Any new water saving equipment installed or water saving processes adopted;
 - b. WCMP actions taken to reduce the volume of water needed to supply the system;
 - c. Planned short or long term efforts and actions to be added to the WCMP to improve the efficiency of water use in the system or by customers and for reducing the loss of water;
 - d. Results of additional water audits completed;
 - e. Review of water use category (residential, commercial, industrial) per-connection use in municipal systems;
 - f. Evaluation of the leak detection and repair program;
 - g. Description of educational activities completed; and

- h. Identification of any water reuse opportunities identified.
5. If revisions or additions to the plan are necessary, an updated WCMP shall be submitted to the Department for approval along with the report prior to implementation of the revised plan.
6. Records of activities conducted pursuant to the WCMP are to be submitted to the Department upon request.

E. Mitigation Plan

The Mitigation Plan approved on April 19, 2023 by the Department is incorporated by reference into this permit and shall have the same effect as any condition contained in this permit and may be enforced as such. 9VAC25-610-110 D 3 g

F. Well Tags

1. Each well that is included in this permit shall have affixed to the well casing, in a prominent place, a permanent well identification plate that records, at a minimum, the Department well identification number, the groundwater withdrawal permit number, the total depth of the well, and the screened intervals in the well. Such well identification plates shall be in a format specified by the Department and are available from the Department. 9VAC25-610-140 A 12
2. Well tags shall be affixed to the appropriate well casing within 30 days of receiving the tags from the Department. The accompanying well tag installation certification form shall be returned to the Department within 60 days of receipt of the tags. 9VAC25-610-140 C

Part II Special Conditions

Pursuant to 9VAC25-610-140 B and C, the following Special Conditions apply to this permit in order to protect the public welfare, safety, and health or conserve, protect and help ensure the beneficial use of groundwater.

Review of the applicant's application, well construction data, operations at the facility, and the Technical Evaluation of the application did not identify a need for water quality or water level monitoring, pump intake reset, or well abandonment conditions in the permit. There are no new wells currently planned for construction during the permit term. Technical Evaluation of the application was based on a nearby surrogate aquifer test and additional testing is not required at this facility. Construction of observation wells or well nests, and geophysical boreholes to assist in monitoring or characterizing the local or regional aquifer system are not required at this time.

Part III General Conditions

A. Duty to Comply

The Permittee shall comply with all conditions of the permit. Nothing in this permit shall be construed to relieve the permit holder of the duty to comply with all applicable federal and state statutes, regulations and prohibitions. Any permit violation is a violation of the law and is grounds for enforcement action, permit termination, revocation, modification, or denial of a permit application. 9VAC25-610-130 A

B. Duty to Cease or Confine Activity

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which a permit has been granted in order to maintain compliance with the conditions of the permit. 9VAC25-610-130 B

C. Duty to Mitigate

The Permittee shall take all reasonable steps to avoid all adverse impacts that may result from this withdrawal as defined in 9VAC25-610-10 and provide mitigation of the adverse impact when necessary as described in 9VAC25-610-110 D 3 g and 9VAC25-610-130 C.

D. Inspection, Entry, and Information Requests

Upon presentation of credentials, the Permittee shall allow the Department, or any duly authorized agent of the Department, at reasonable times and under reasonable circumstances, to enter upon the Permittee's property, public or private, and have access to, inspect and copy any records that must be kept as part of the permit conditions, and to inspect any facilities, well(s), water supply system, operations, or practices (including sampling, monitoring and withdrawal) regulated or required under the permit. For the purpose of this section, the time for inspection shall be deemed reasonable during regular business hours. Nothing contained herein shall make an inspection time unreasonable during an emergency. 9VAC25-610-130 D

E. Duty to Provide Information

The Permittee shall furnish to the Department, within a reasonable time, any information that the Department may request to determine whether cause exists for modifying or revoking, reissuing, or terminating the permit, or to determine compliance with the permit. The Permittee shall also furnish to the Department, upon request, copies of records required to be kept by regulation or this permit. 9VAC25-610-130 E

F. Monitoring and Records Requirements

1. The Permittee shall maintain a copy of the permit on-site and/or shall make the permit available upon request. 9VAC25-610-130 E

2. Monitoring of parameters shall be conducted according to approved analytical methods as specified in the permit. 9VAC25-610-130 F 1
3. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. 9VAC25-610-130 F 2
4. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three years from the date of the expiration of a granted permit. This period may be extended by request of the Department at any time. 9VAC25-610-130 F 3
5. Records of monitoring information shall include as appropriate: 9VAC25-610-130 F 4
 - a. the date, exact place and time of sampling or measurements;
 - b. the name(s) of the individual(s) who performed the sampling or measurements;
 - c. the date the analyses were performed;
 - d. the name(s) of the individual(s) who performed the analyses;
 - e. the analytical techniques or methods supporting the information, such as observations, readings, calculations and bench data used;
 - f. the results of such analyses; and
 - g. chain of custody documentation.

G. Environmental Laboratory Certification

The Permittee shall comply with the requirement for certification of laboratories conducting any tests, analyses, measurements, or monitoring required pursuant to the State Water Control Law (§ 62.1-44.2 et seq. of the Code of Virginia), Environmental Laboratory Certification Program (§ 2.2-1105 et seq. of the Code of Virginia), Certification for Noncommercial Environmental Laboratories (1VAC30-45), and/or Accreditation for Commercial Environmental Laboratories (1VAC30-46), and

1. Ensure that all samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
2. Conduct monitoring according to procedures approved under 40CFR Part 136 or alternative methods approved by the U.S. Environmental Protection Agency.
3. Periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will ensure accuracy of measurements. 1VAC30-45-20

H. Future Permitting Actions

1. A permit may be modified or revoked as set forth in Part VI of the Groundwater Withdrawal Regulations. 9VAC25-610-290 and 9VAC25-610-130 G
2. If a Permittee files a request for permit modification or revocation, or files a notification of planned changes, or anticipated noncompliance, the permit terms and conditions shall remain effective until the Department makes a final case decision. This provision shall not be used to extend the expiration date of the effective permit. 9VAC25-610-130 G
3. Permits may be modified or revoked upon the request of the Permittee, or upon Department initiative, to reflect the requirements of any changes in the statutes or regulations. 9VAC25-610-130 G
4. The Permittee shall schedule a meeting with the Department prior to submitting a new, expanded or modified permit application. 9VAC25-610-85
5. A new permit application shall be submitted 270 days prior to the expiration date of this permit, unless permission for a later date has been granted by the Department, to continue a withdrawal greater than or equal to 300,000 gallons in any month while an application for a renewal is being processed. 9VAC25-610-96
6. A new permit application shall be submitted 270 days prior to any proposed modification to this permit that will (i) result in an increase of withdrawal above permitted limits; or (ii) violate the terms and conditions of this permit. 9VAC25-610-96
7. The applicant shall provide all information described in 9VAC25-610-94 for any reapplication. 9VAC25-610-96 C
8. The Permittee must notify the Department in writing of any changes to owner and facility contact information within 30 days of the change. 9VAC25-610-140 C

I. Metering and Equipment Requirements

1. Each well and/or impoundment or impoundment system shall have an in-line totalizing flow meter to read gallons, cubic feet, or cubic meters installed prior to beginning the permitted use. Meters shall produce volume determinations within plus or minus 10% of actual flows. An alternative method for determining flow may be approved by the Department on a case-by-case basis. 9VAC25-610-140 A
7 b
 - a. A defective meter or other device must be repaired or replaced within 30 days.
 - b. A defective meter is not grounds for not reporting withdrawals. During any period when a meter is defective, generally accepted engineering methods shall be used to estimate withdrawals. The period during which the meter was defective must be clearly identified in the groundwater withdrawal report required by Part I, Subsection D of this permit.
2. Each well shall be equipped in a manner such that water levels can be measured during pumping and

non-pumping periods without dismantling any equipment. Any opening for tape measurement of water levels shall have an inside diameter of at least 0.5 inches and be sealed by a removable plug or cap. The Permittee shall provide a tap for taking raw water samples from each permitted well.

9VAC25-610-140 A 7 e

J. Minor Modifications

1. A minor modification to this permit must be made to replace an existing well(s) or add an additional well(s) provided that the well(s) is screened in the same aquifer(s) as the existing well(s), and is in the near vicinity of the existing well(s), the total groundwater withdrawal does not increase, the area of impact does not increase, and the well has been approved by the Department prior to construction. 9VAC25-610-330 B 4 and B 5
2. A minor modification to this permit must be made to combine withdrawals governed by multiple permits when the systems are physically connected as long as interconnection will not result in additional groundwater withdrawal and the area of impact will not increase. 9VAC25-610-330 B 6
3. Minor modifications to this permit must also be made to:
 - a. Change an interim compliance date up to 120 days from the original compliance date, as long as the change does not interfere with the final compliance date. 9VAC25-610-330 B 7
 - b. Allow for change in ownership when the Department determines no other change in the permit is necessary and the appropriate written agreements are provided in accordance with the transferability of permits and special exceptions. 9VAC25-610-320 and 9VAC25-610-330 B 8
 - c. Revise a Water Conservation and Management Plan to update conservation measures being implemented by the Permittee that increase the amount of groundwater conserved. 9VAC25-610-330 B 9

K. Well Construction

At least two weeks prior to the scheduled construction of any well(s), the Permittee shall notify the Department of the construction timetable and receive prior approval of the well(s) location(s) and acquire the Department Well number (DEQ Well #). All wells shall be constructed in accordance with the following requirements.

1. A well site approval letter or well construction permit must be obtained from the Virginia Department of Health prior to construction of the well. 9VAC25-610-130 A
2. A complete suite of geophysical logs (16"/64" Normal, Single Point, Self-Potential, Lateral, and Natural Gamma) shall be completed for the well and submitted to the Department along with the corresponding completion report. 9VAC25-610-140 C
3. The Permittee shall evaluate the geophysical log and driller's log information to estimate the top of the target aquifer and; therefore, a depth below which the pump shall not be set. The Permittee's determination of the top of the target aquifer shall be submitted to the Department for review and

approval, or approved on site by the Department's Groundwater Characterization staff, prior to installation of any pump. 9VAC25-610-140 A 6

4. The Permittee shall install gravel packs and grout in a manner that prevents leakage between aquifers. Gravel pack shall be terminated close to the top of the well screen(s) and shall not extend above the top of the target aquifer. 9VAC25-610-140 C
5. A completed GW-2 Form and any additional water well construction documents shall be submitted to the Department within 30 days of the completion of any well and prior to the initiation of any withdrawal from the well. The assigned Department Well number shall be included on all well documents. 9VAC25-610-140 C
6. In addition to the above requirements, if required by the permit, construction of a Water Level Monitoring State Observation Well (SOW) requires:
 - a. The Permittee shall coordinate activities with the Department's Groundwater Characterization Program (GWCP) to determine the appropriate observation well location and construction schedule, along with the needed screen interval(s), and other completion details following review of geophysical logging. 9VAC25-610-140 C
 - b. Prior to preparation of bid documents for construction of the observation well, the Permittee shall notify the Department and shall include any GWCP requirements in the bid documents. At a minimum, the Department will require a pre-bid meeting with interested drilling contractors and a pre-construction meeting with the successful bidder. 9VAC25-610-140 C
 - c. Instrumentation to meet the requirements for real-time data transmission consistent with the State Observation Well Network shall be purchased by the Permittee. The Permittee shall submit a purchase order based on the Department's equipment specifications for review and approval prior to purchase of the equipment. The Permittee shall install the real-time equipment infrastructure with Department oversight. The Department will conduct the installation of the transducer and final hook-up of the equipment. 9VAC25-610-140 C
7. In addition to the above requirements, if required by the permit, construction of a Chloride Monitoring SOW requires:
 - a. The Permittee shall coordinate activities with the Department's Groundwater Characterization Program (GWCP) to determine the appropriate observation well location and construction schedule, along with the needed screen interval(s), and other completion details following review of geophysical logging. 9VAC25-610-140 C
 - b. Prior to preparation of bid documents for construction of the observation well, the Permittee shall notify the Department and shall include any GWCP requirements in the bid documents. At a minimum, the Department will require a pre-bid meeting with interested drilling contractors and a pre-construction meeting with the successful bidder. 9VAC25-610-140 C
 - c. Instrumentation to meet the requirements for real-time data transmission consistent with the State Observation Well Network shall be purchased by the Permittee. The Permittee shall submit a purchase order based on the Department's equipment specifications for review and

approval prior to purchase of the equipment. The Permittee shall install the real-time equipment infrastructure with Department oversight. The Department will conduct final hook-up of the equipment. 9VAC25-610-140 C

- d. Instrumentation to meet the requirements for continuous measurement of specific conductance from multiple levels within the well screen shall be purchased by the Permittee. The Permittee shall submit a purchase order based on the Department's equipment specifications for review and approval prior to purchase of the equipment. The Permittee shall install the real-time equipment infrastructure with Department oversight. The Department will conduct the final hook-up of the equipment. 9VAC25-610-140 C

L. Permit Reopening

This permit may be reopened for the purpose of modifying the conditions of the permit as follows:

1. To meet new regulatory standards duly adopted by the Board. 9VAC25-610-140 A 11
2. When new information becomes available about the permitted withdrawal, or the impact of the withdrawal, which had not been available at permit issuance and would have justified the application of different conditions at the time of issuance. 9VAC25-610-310 B 1
3. When the reported withdrawal is less than 60% of the permitted withdrawal amount for a five year period. 9VAC25-610-310 B 2
4. If monitoring information indicates the potential for adverse impacts to groundwater quality or level due to this withdrawal. 9VAC25-610-140 C

COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

PERMIT ISSUANCE FACT SHEET

Groundwater Withdrawal Permit Number: GW0037402

Application Date: October 12, 2022

The Department of Environmental Quality (Department or DEQ) has reviewed the application for a Groundwater Withdrawal Permit. This document provides the pertinent information concerning the legal basis, scientific rationale, and justification for the issuance/reissuance/modification of the Groundwater Withdrawal Permit listed below. Based on the information provided in the application and subsequent revisions, the Department has determined that there is a reasonable assurance that the activity authorized by the permit is a beneficial use as defined by the regulations. Groundwater impacts have been minimized to the maximum extent practicable. The following details the application review process and summarizes relevant information for developing the Permit and applicable conditions.

Permittee / Legal Responsible Party

Name & Address: Cintas Corporation
6800 Cintas Boulevard, P.O. Box 625737
Cincinnati, OH 45262-5737
Phone: (757) 485-1100

Facility Name and Address

Name & Address: Cintas Portsmouth #391
2707 Smithfield Road
Portsmouth, VA 23702
Phone: (757) 485-1100

Contact Information:

Name: Danny Nolan
E-mail: NolanD@cintas.com
Phone: (757) 485-1100

Proposed Beneficial Use:

Groundwater is used to launder soiled textiles and uniforms.

Staff Findings and Recommendations

Based on review of the permit application, staff provides the following findings.

- The proposed activity is consistent with the provisions of the Ground Water Management Act of 1992, and will protect other beneficial uses.
- The proposed permit addresses minimization of the amount of groundwater needed to provide the intended beneficial use.
- The effect of the impact will not cause or contribute to significant impairment of state waters.
- This permit includes a plan to mitigate adverse impacts on existing groundwater users.

Staff recommends Groundwater Withdrawal Permit Number GW0037402 be issued as proposed.

Approved:

Scott Morris, DBA, P.E.
Director, Water Division

Date:

Processing Dates

Processing Action	Date Occurred/Received
Pre-Application Meeting:	7/21/2022
Application Received by DEQ:	10/12/2022
Permit Fee Deposited by Accounting:	10/12/2022
Application Review Conducted:	10/13/2022
Notice of Deficiency Sent	10/13/2022
Notice of Deficiency Information Received:	12/22/2022
Request for Additional Information Sent:	3/2/2023
Response to Request for Additional Information Received:	3/17/2023
Request for Additional Information Sent:	3/22/2023
Response to Request for Additional Information Received:	4/5/2023
Local Government Ordinance Form Received by DEQ:	3/17/2023
Application Complete:	3/17/2023
Submit Request for Technical Evaluation:	4/5/2023
Technical Evaluation Received by DEQ:	4/5/2023
Draft Permit Package Sent:	4/24/2023
Public Notice Published:	5/17/2023
End of 30-Day Public Comment Period:	6/16/2023
Response to Public comment:	
Public Meeting or Hearing:	

Application

Application Information

Description:

Background / Purpose of Facility:

Groundwater withdrawal permit GW0037400 was issued to Omni Services, Inc. on December 1, 2000 with an annual withdrawal limit of 23,600,000 gallons and a monthly withdrawal limit of 2,300,000 gallons from Well RUS (DEQ Well #220-00051). This permit was modified and transferred to Cintas Corporation on October 1, 2005 due to a change of facility ownership. This permit expired on November 30, 2010.

Groundwater withdrawal permit GW0037401 was issued April 1, 2013 with an annual withdrawal limit of 23,600,000 gallons and a monthly withdrawal limit of 2,300,000 gallons from Well RUS (DEQ Well #220-00051). This permit expired on March 31, 2023 and was administratively continued pursuant to 9VAC25-610-96.

Location of Facility/Withdrawal:

Water Supply Planning Unit: Hampton Roads Planning District Commission

City: Portsmouth

GWMA/Aquifer: Eastern Virginia GWMA/Potomac Aquifer

Conjunctive Use Source: No conjunctive use.

Withdrawal Use, Current Need, and Projected Demand:Basis of Need:

Cintas launders hospital and uniform garments and towels. In June 2022, Cintas acquired an additional 5,400 daily pounds of garments from one of its branch locations. This increased the average monthly pound of garments laundered to approximately 55,200 pounds. All of the groundwater withdrawn from the facility's one well, RUS (DEQ Well #220-00051), is used in the laundry process. A separate sanitary water line is used by employees for their demands.

Approximately 0.5% of groundwater withdrawn is sent to the wastewater room without entering the washing machines. 21% of the groundwater is evaporated during the washing and drying cycles. 77.5% of the groundwater withdrawn is sent to the wastewater room where the water is passed through a filter and a dissolved air flotation tank where coagulation and flocculation are utilized to remove soil from the water. The water is then discharged into the sewage system when it reaches a certain water quality dictated by the limits set in the facility's wastewater discharge permit for Hampton Roads Sanitation District (HRSD) #0464-3.1.

Water Demand and Projections:

The facility calculated an average of 1.15 gallons of withdrawal per pound of laundered garment. After acquiring the additional daily 5,400 pounds of garments for daily laundry processing (6,210 gallons per day) in June 2022, the facility calculated an adjusted average daily water usage of 63,448.82 gallons. This was calculated by averaging the daily water usage data for each month from December 2021 through November 2022, with an additional 6,210 gallons per day added to the daily usage for the months of December 2021 through May 2022, before the additional daily laundry load was acquired.

The facility rounded up the daily water usage to 64,000 gallons per day (gpd) and multiplied by the 255 days of operation to estimate a total annual demand of 16,320,000 gallons per year (gpy). However, in the application, the annual limit requested was the annual limit from the administratively continued permit GW0037401 of 23,600,000 gallons, with no further justification on the additional requested amount.

The monthly limit from the administratively continued permit GW0037401 of 2,300,000 gallons was requested in the application.

Withdrawal Volumes Requested: The applicant requested the following withdrawal volumes based upon the projected groundwater demand.

Period of Withdrawal	Total Volume (gal.)	Volume in gal/day
Maximum Monthly:	2,300,000	74,194
Maximum Annual:	23,600,000	64,658

Department Evaluation

Historic Withdrawals:

Since the current permit GW0037401 was issued in 2013, annual water usage has steadily increased from approximately 10,000,000 gallons to a peak of approximately 16,142,000 gallons in 2018. While monthly usage appears to regularly fluctuate by up to 500,000 gallons from month to month, it also has steadily increased over the past ten years from an approximate average of 1,000,000 gallons to 1,300,000 gallons, with a peak occurring December 2021 of 1,640,000 gallons.

Analysis of Alternative Water Supplies:

The only alternative source of water is from the city. The well system does not currently have a way to be converted to city water without extensive remapping of our system. This type of project would not only hinder the Cintas Portsmouth facility's production and services to its customers but also would have a material impact on its business revenue.

There is technology available to re-use a certain percentage of our wastewater after discharge from the industrial washers. These technologies include dissolved air filtration systems and reverse osmosis membrane systems. However, this technology is currently cost prohibitive to install at the Portsmouth facility. These costs include tanks, pumps, process piping, electrical, controls, valves, membranes, and monitoring probes. A water re-use system will become a viable solution as this technology becomes more cost effective. Some of Cintas' customer's products cannot be laundered in re-used water due to the condition of the water and the restrictions from our customers. Our location requires a hygiene control management certificate to be compliant with certain health and food industries. Re-used water will have aerobic or anaerobic bacteria in the water, which cannot be transferred to certain laundered products. This reduces the percent of water that we can re-use at our facilities.

Although Cintas strives to have a closed loop water system, approximately 15-20% of Cintas' water is removed from the process due to evaporation or carries over. The evaporation occurs from the facility's processed steam and the carry over occurs from the water retention in the facility's laundered textiles as they leave the washers and enter the dryers. This water is then removed during the drying process. Cintas Portsmouth's facility has a proficient condensate return system for the processed steam that recaptures condensed steam. It also has a vent condenser system that condenses steam vapor back into water for re-use in the boiler system.

Public Water Supply:

The proposed beneficial use does not contain a public water supply component.

Water Supply Plan Review:

The facility is included in the Hampton Roads Regional Water Supply Plan. Demand projections for the facility were included in the Plan and could be considered in the evaluation of the permit request. Withdrawals for the Cintas Corporation were projected to remain consistent throughout the planning

period at the reported use at the time of plan development (21 MGY). Since the original plan development in 2011, reported use has remained steady with the current five-year average of 15.4 MGY. Comparing the requested annual/ monthly volume of 19.5 MGY/2.3 MGM to the historical reported use, the applicants requested withdrawal amounts are supported by reported use. The requested amounts do not show increased demands placed on the facility compared to the highest reported demands over the reporting history or the projected water demands in the water supply plan. The *Statement of Needs and Alternatives* in the Water Supply Plan projected that existing water supply in the locality would be sufficient to meet demands within the planning period. The laundering operations of the Cintas Portsmouth facility is currently supplied by groundwater wells entirely, with limited alternatives available to connect to surface water, groundwater continues to be the primary available water source.

Department Recommended Withdrawal Limits:

The Department recommended, and the facility concurred on, an annual withdrawal limit of 19,500,000 gallons. This was calculated using the average current daily water use from the application of 63,448.82 gpd x 255 operational days per year = 16,179,449 gallons. An additional 20% buffer was added to this to account for occasional higher business demands, system leaks and acceptable variability in meter accuracies. This total, 19,415,339 gpy was rounded up to 19,500,000 gpy.

The current monthly permit limit request was accepted based on historical monthly peak usage and similar account for higher demands and variability throughout the permit term.

The Department recommends the following withdrawal volumes based upon evaluation of the groundwater withdrawal permit application.

Period of Withdrawal	Total Volume (gal.)	Volume in gal/day
Maximum Monthly:	2,300,000	74,194
Maximum Annual:	19,500,000	53,425

Technical Evaluation:

Aquaveo, LLC performed a technical evaluation of the application for the Department based on the VAHydro Groundwater Eastern Virginia Model (VAHydro-GW-VCMP). The objectives of this evaluation were to determine the areas of any aquifers that will experience at least one foot of water level decline due to the proposed withdrawal (the Area of Impact or AOI), to determine the potential for the proposed withdrawal to cause salt-water intrusion, and to determine if the proposed withdrawal meets the 80% drawdown criteria. Aquaveo, LLC also evaluated water levels in the Eastern Virginia Model compared to measured field values.

The Department concluded that the proposed withdrawal satisfies the technical evaluation criteria for permit issuance. A summary of the results of the evaluation and the AOI for the Potomac aquifer is provided in the Technical Evaluation (Attachment 1).

Part I
Operating Conditions

Authorized Withdrawals:

Owner Well Name	DEQ Well #	Aquifer	Type	Pump Intake Limit (ft. bls)
RUS	220-00051	Potomac	Production	650

Apportionment: No well usage apportionment required as there is only one production well.

Additional Wells:

Observation Wells: No observation wells.

Abandoned Wells:

Owner Well Name	DEQ Well #	Aquifer	Date Abandoned
RUS 1	220-00025	Potomac	December 2012
RUS 2	220-00066	Potomac	December 2012

Out of Service Wells: No Out of Service wells.

Pump Intake Settings:

Department geologist has reviewed available information and made the following determinations regarding the location of the aquifer tops for Well RUS (DEQ Well #220-00051). Information reviewed in this process was the well completion reports, driller's logs, the single point resistivity for Well #220-00025, and The Virginia Coastal Plain Hydrogeologic Framework (USGS Professional Paper 1731).

Unit	Well RUS (ft. bls)
Potomac aquifer top	650

The production well pump is correctly positioned in accordance with 9VAC25-610-140 A 6; it is located at 189 feet below land surface (ft. bls).

Withdrawal Reporting:

Groundwater withdrawals are to be recorded monthly and reported quarterly.

Water Conservation and Management Plan:

A Water Conservation and Management Plan (WCMP) meeting the requirements of 9VAC25-610-100 B was submitted and reviewed as part of the application process. The accepted Plan is to be followed by the permittee as an operational Plan for the facility/water system, is incorporated by reference into this permit, and shall have the same effect as any condition contained in this permit and may be enforced as such (Attachment 2). In addition, the Permit includes conditions requiring the following:

- Documentation that the leak detection and repair program defined in the WCMP has been initiated is due by the end of the first year of the permit term.
- A result of an audit of the total amount of groundwater used in the distribution system and operational processes is due by the end of the second year of the permit term.
- A report on the plan's effectiveness in reducing water use, including revisions to those elements of the WCMP that can be improved and addition of other elements found to be effective based on operations to date shall be submitted by the end of years five [date] and ten [date] of the permit term.

Mitigation Plan:

The predicted AOI resulting from the Technical Evaluation extends beyond the property boundaries in the Potomac aquifer. Given this prediction, a Mitigation Plan to address potential claims from existing well owners within the predicted area of impact is incorporated by reference in the permit and shall have the same effect as any condition contained in this permit and may be enforced as such (Attachment 3).

Well Tags: Well tags will be transmitted by the Department after issuance of the final permit.

Part II
Special Conditions

Review of the applicant's application, well construction data, operations at the facility, and the Technical Evaluation of the application did not identify a need for water quality or water level monitoring, pump intake reset, or well abandonment conditions in the permit. There are no new wells currently planned for construction during the permit term. Technical Evaluation of the application was based on a nearby surrogate aquifer test and additional testing is not required at this facility. Construction of observation wells or well nests, and geophysical boreholes to assist in monitoring or characterizing the local or regional aquifer system are not required at this time.

Part III
General Conditions

General Conditions are applied to all Groundwater Withdrawal Permits, as stated in the Groundwater Withdrawal Regulations, 9VAC25-610.

Public Comment

Relevant Regulatory Agency Comments:Summary of VDH Comments and Actions:

The water use covered by this permit for this facility is not a public water supply so soliciting comments from VDH was not required.

Public Involvement during Application Process:

Local and Area wide Planning Requirements: The City of Portsmouth Stormwater Compliance Manager certified on March 13, 2023 that no local ordinances are in effect. The Department received this certification on March 17, 2023.

Public Comment/Meetings:

The public notice was published in the *Virginian-Pilot* on May 17, 2023. The public comment period ran from May 17, 2023 to June 16, 2023.

Changes in Permit Part II Due to Public Comments

Changes in Permit Part III Due to Public Comments

Attachments

1. **Technical Evaluation**
2. **Water Conservation and Management Plan**
3. **Mitigation Plan**
4. **Public Comment Sheet (*if warranted*)**

**COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY**

TECHNICAL EVALUATION FOR PROPOSED GROUNDWATER WITHDRAWAL

Date: April 5, 2023

Application /Permit Number: GW0037402

Owner / Applicant Name: Cintas Corporation

Facility / System Name: Cintas Portsmouth #391

Facility Type: Industrial

Facility / System Location: Portsmouth City

The Commonwealth of Virginia's Groundwater Withdrawal Regulations (9VAC25-610) provide that, for a permit to be issued for a new withdrawal, to expand an existing withdrawal, or reapply for a current withdrawal, a technical evaluation shall be conducted. This report documents the results of the technical evaluation conducted to meet the requirements for the issuance of a permit to withdraw groundwater within a Designated Groundwater Management Area (9VAC25-600).

This evaluation determines the:

- (1) The Area of Impact (AOI): The AOI for an aquifer is the areal extent of each aquifer where one foot or more of drawdown is predicted to occur as a result of the proposed withdrawal.
- (2) Water Quality: The potential for the proposed withdrawal to cause salt water intrusion into any portion of any aquifers or the movement of waters of lower quality into areas where such movement would result in adverse impacts on existing groundwater users or the groundwater resource.
- (3) The Eighty Percent Drawdown (80% Drawdown): The proposed withdrawal in combination with all existing lawful withdrawals will not lower water levels, in any confined aquifer that the withdrawal impacts, below a point that represents 80% of the distance between the land surface and the top of the aquifer at the points where the one-foot drawdown contour is predicted for the proposed withdrawal.

Requested withdrawal amount:

Requested Withdrawal Amount		
Annual Value	19,500,000	(53,425 average gpd)
Monthly Value	2,300,000	(74,194 average gpd)

Requested Apportionment of Withdrawal:

DEQ Well #	Owner Well #	Aquifer	Percent of Withdrawal
220-00051	RUS	Potomac	100

Summary of Requested Withdrawal:

Cintas launders hospital and uniform garments and towels. While all of the groundwater withdrawn from the facility's one well, RUS (DEQ Well #220-00051), is used in the laundry process, a separate sanitary water line is used by employees for their demands.

Production Wells:

Identification	Location	Construction	Pump Intake	Source Aquifer
Owner Well Name: RUS DEQ Well Number: 220-00051 MPID: 364742076202701	Lat: : 36° 47' 41.4" Lon: -76° 20' 25.26" Datum: NAD83 Elevation: 10 ft.	Completion Date: March 1988 Screens (ft/bls): 680-700 Total Depth (ft/bls): 700	189	Potomac

Abandoned Wells:

Identification	Location	Construction	Pump Intake	Source Aquifer
Owner Well Name: RUS 1 DEQ Well Number: 220-00025 MPID: 364741076202601	Lat: : 36° 47' 41.1" Lon: -76° 20' 24.54" Datum: NAD83 Elevation: 10 ft	Completion Date: 11/17/1979 Screens (ft/bls): 680-700 Total Depth (ft/bls): 700	N/A	Potomac Abandoned 12/2012
Owner Well Name: RUS 2 DEQ Well Number: 220-00066 MPID: 364742076202501	Lat: : 36° 47' 41.34" Lon: -76° 20' 23.82" Datum: NAD83 Elevation: 10 ft	Completion Date: Unknown Screens (ft/bls): Unknown Total Depth (ft/bls): 703	N/A	Potomac Abandoned 12/2012

Geologic Setting:

The Cintas Portsmouth #391 wells (applicant wells) are located in Portsmouth County. The applicant's production wells are screened in the Potomac aquifer. USGS Professional Paper 1731¹, *The Virginia Coastal Plain Hydrogeologic Framework* (VCPHF), is the most recent study discussing the aquifers and confining units of the Virginia Coastal Plain. The study utilized numerous boreholes throughout the Virginia Coastal Plain to interpolate the elevations of the different hydrogeologic units found in the Coastal Plain.

According to the study, the Potomac aquifer is the "largest, deepest, and most heavily used source of ground water in the Virginia Coastal Plain." The aquifer is underlain across its entire extent with basement bedrock. The aquifer is found below the Potomac confining zone. The aquifer is primarily composed "of fluvial-deltaic coarse-grained quartz and feldspar sands and gravels and interbedded clays." The nearest east-west geologic cross section, HD-HD', from the USGS Professional Paper 1731 is shown in the figure at the end of this report.

¹ McFarland E. R., and Bruce T.S., 2006. The Virginia Coastal Plain Hydrologic Framework: U.S. Geologic Survey Professional Paper 1731. 118 p., 25 pls. (available online at <http://pubs.water.usgs.gov/pp1731/>).

Hydrologic Framework:

Data from the VCPHF is reported in this technical report to illustrate the hydrogeologic characteristics of the aquifers in the Virginia Coastal Plain near the applicant well and identify major discrepancies between regional hydrogeology and site logs interpreted by DEQ staff. The Virginia Coastal Plain Model² (VCPM) framework was constructed by extracting the hydrogeologic unit tops and thicknesses from the VCPHF. The original USGS VCPM was updated and adapted for use in the VA-DEQ well permitting process and is referred to as VAHydroGW-VCPM.

VAHydroGW-VCPM Model:

The following table lists the locations of the applicant production well within the VAHydroGW-VCPM Model.

VAHydroGW-VCPM Model Grid				
Well	Well Number	MPID	Row	Column
RUS	220-00051	364742076202701	112	66

The following aquifer top elevations and thicknesses are simulated in the VAHydroGW-VCPM Model at the model cell containing the applicant well.

VAHydroGW-VCPM Model Hydrogeologic Unit Information (Row: 112/Column: 66)		
Aquifer	Elevation (ft-msl)	Depth (ft-bls)
Surface	9	0
Water Table aquifer (bottom)	-16	25
Yorktown-Eastover (top)	-25	34
Yorktown-Eastover (bottom)	-175	184
Piney Point (top)	-414	423
Piney Point (bottom)	-435	444
Aquia (top)	-454	463
Aquia (bottom)	-471	480
Virginia Beach (top)	-476	485
Virginia Beach (bottom)	-493	502
Potomac (top)	-630	639
Potomac (bottom)	-2211	2220

Note: ft-msl = feet above mean sea level

Groundwater Characterization Program Recommendations:

Department staff have reviewed available information and made the following determinations regarding the location of the aquifer tops for Well RUS (DEQ Well #220-00051). Information reviewed in this process was the well completion reports, driller's logs, the single point resistivity for Well #220-00025, and The Virginia Coastal Plain Hydrogeologic Framework (USGS Professional Paper 1731).

Unit	Well RUS (ft. bls)
Potomac aquifer top	650

² Heywood, C.E., and Pope, J.P., 2009, Simulation of groundwater flow in the Coastal Plain aquifer system of Virginia: U.S. Geological Survey Scientific Investigations Report 2009-5039, 115 p.

Comparison of the Hydrogeologic Framework and Geologist Report:

The VCPMF identifies the top and thickness of the Potomac aquifer at an elevation of 639 ft-bls and 1,581 feet thick at the cell containing the applicant well, respectively. The top elevation of the Potomac aquifer given by DEQ staff is 650 ft-bls. The top elevation of the Potomac identified by the VCPMF is 11 feet higher than, but in general agreement with the value identified by DEQ staff. The bottom of the Potomac aquifer was not identified by DEQ staff so a comparison to the VCPMF could not be made.

Pump Intake Elevation:

Virginia regulations specify that well pump intakes must be placed at or above the top of the source aquifer. Based on a review the site information provided by DEQ staff the pump intake elevation for the production well is in compliance with the limits specified by regulation³.

Water Level Comparison:

The *Virginia Coastal Plain Model (VAHydroGW-VCPM) 2021-2022 Annual Simulation of Potentiometric Groundwater Surface Elevations of Reported and Total Permitted Use* report (the *2021-2022 report*) and modeling files⁴ provide two sets of simulated potentiometric water surface elevations. These water elevations are based upon, 1) the reported withdrawal amount of wells in the VAHydroGW-VCPM model ("the reported use simulation") and, 2) the total permitted withdrawal amount for wells in the VAHydroGW-VCPM model ("the total permitted simulation"). USGS regional observation network well water levels were compared to the water levels in the 2021-2022 report in order to evaluate the performance of the regional model in the vicinity of the applicant wells and assess historical groundwater trends. In the tables below, simulated water levels from the year 2021, from the reported use simulation, were compared to USGS measured water levels for the same year. For comparison, the total permitted simulated water levels are also reported. The total permitted water levels are taken from the end of the 50 year total permitted simulation and represent simulated water levels, 50 years from present, if all GWMA wells were to pump at their total permitted amount.

The USGS regional observation network wells closest to the applicant wells are shown in Figure 1 and listed in the following tables. The depth of these wells corresponds with the Potomac aquifer. The distances from the applicant wells to the USGS wells are also given in the tables. The 2021 annual average water levels observed for regional observation network wells are given in the following table. The VAHydroGW-VCPM row and column containing the USGS wells are also given. The water levels obtained from the regional observation network wells are shown in Figures 2 and 3. These figures also show the water levels from the reported use VAHydroGW-VCPM simulation for the cell containing each USGS well.

The water level graph for the first well in the Potomac aquifer (59C 30 SOW 163B) shows a steady decline in water level from the time of the earliest available records (1981) to around 2010. From 2010 to the present, the water level at this well has increased approximately 15 feet. The water level at this well shows annual changes of between 1 and 5 feet per year in the time period for which USGS water level data is available for comparison. The VAHydroGW-VCPM simulated reported use water levels at this location are approximately 1 to 8 feet higher than the USGS observed water levels, but are in general agreement.

³ 9 VAC 25 610 140.A.5. "The permittee shall not place a pump or water intake device lower than the top of the uppermost confined aquifer that a well utilizes as a ground water source or lower than the bottom of an unconfined aquifer that a well utilizes as a ground water source;

⁴ Refer to "Virginia Coastal Plain Model (VAHydroGW-VCPM) 2021-2022 Annual Simulation of Potentiometric Groundwater Surface Elevations of Reported and Total Permitted Use" at <http://www.deq.virginia.gov/Programs/Water/WaterSupplyWaterQuantity/GroundwaterCharacterization/ReportsPublications.aspx>

The water level graph for the second well in the Potomac aquifer (57C 22 SOW 099B) also shows a steady decline in water levels from the time of the earliest available records (1980) to around 2010. The VAHydroGW-VCPM simulated reported use water levels at this location are approximately 1 to 10 feet higher than the USGS observed water levels, but are in general agreement.

Potomac Aquifer		
Measurement	Well 59C 30 SOW 163B	Well 57C 22 SOW 099B
Distance from nearest applicant well (miles)	4.8	16.8
Elevation (ft-msl)	15	72
VAHydroGW-VCPM Row	110	112
VAHydroGW-VCPM Column	62	49
VAHydroGW-VCPM Cell Elevation	12	55
USGS Regional Well 2021 Average Water Level (ft-bls)	88.5	155.3
USGS Regional Well 2021 Average Water Level (ft-msl)	-73.5	-83.3
VAHydroGW-VCPM 2021 Reported Use Simulated Water Level (ft-bls)	80.2	131.4
VAHydroGW-VCPM 2021 Reported Use Simulated Water Level (ft-msl)	-68.2	-76.4
VAHydroGW-VCPM Total Permitted Simulated Water Level (ft-bls)	103.1	160.5
VAHydroGW-VCPM Total Permitted Simulated Water Level (ft-msl)	-91.1	-105.5

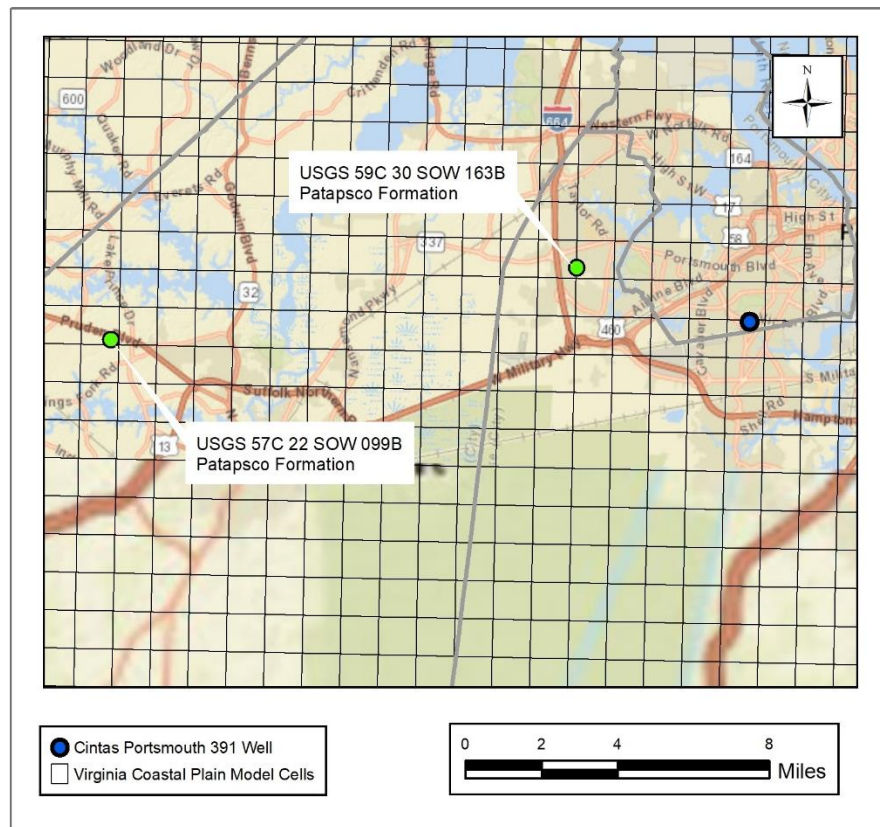


Figure 1. Nearest USGS regional observation network wells.

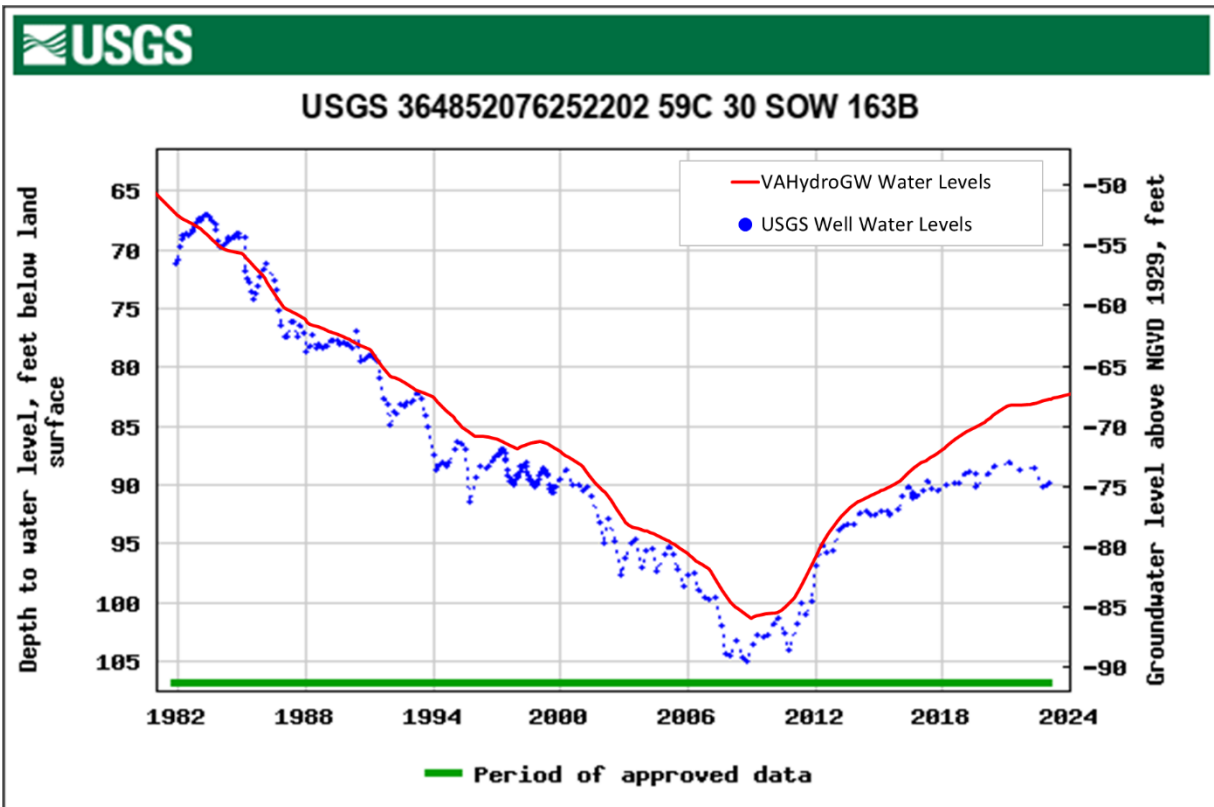


Figure 2. USGS Regional Observation Well 59C 30 SOW 163B, Potomac aquifer water levels (Patapsco Formation) recorded from 1981 to present (well depth 948 ft bls, land surface 15 ft msl) and VAHydroGW-VCPM reported use water levels.

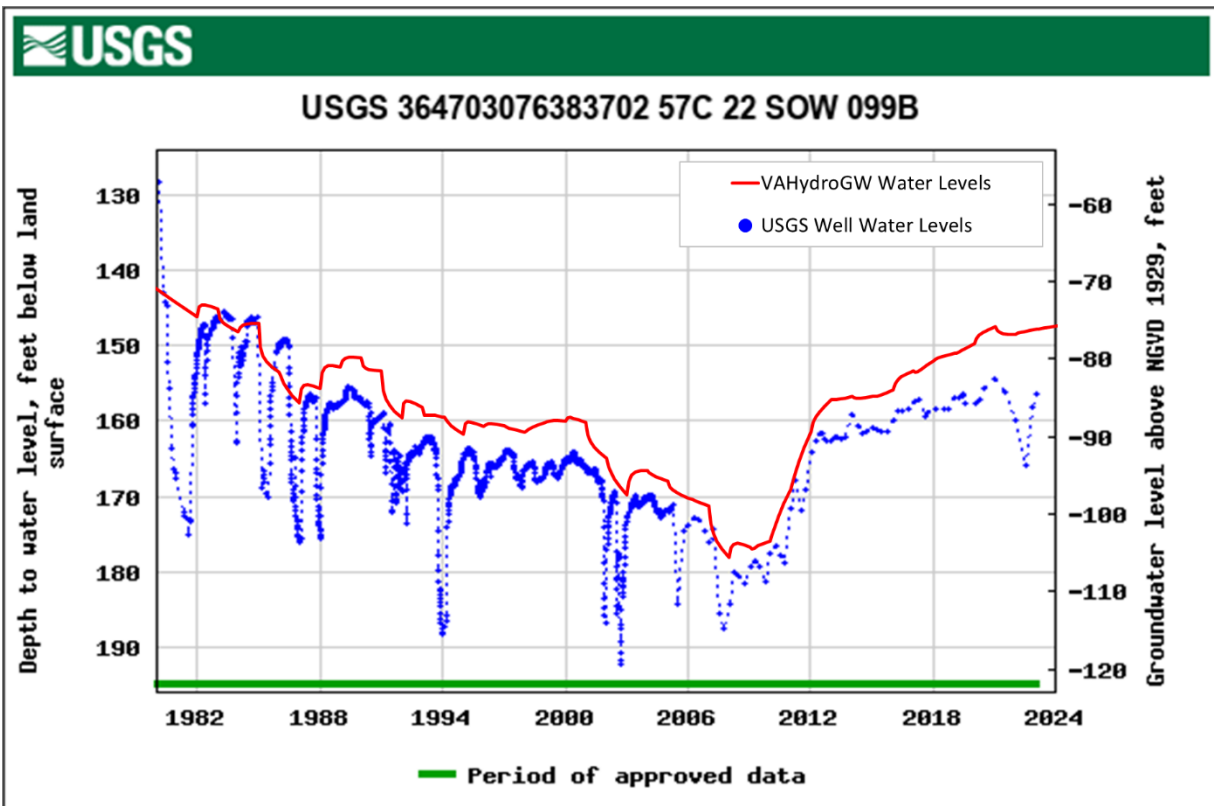


Figure 3. USGS Regional Observation Well 57C 22 SOW 099B, Potomac aquifer water levels (Patapsco Formation) recorded from 1980 to present (well depth 694 ft bls, land surface 72 ft msl) and VAHydroGW-VCPM reported use water levels.

Aquifer Test(s):

No aquifer test was completed at this site. The 2012 technical evaluation for the previous permit, GW0037401, used aquifer test data from the nearby Tidewater Area Central Hospital Laundry, Inc., located 2.6 miles to the west of the Cintas well.

The hydraulic properties for the VAHydroGW-VCPM cell containing the applicant well are shown in the following table.

Hydrogeologic Unit	Horizontal Conductivity (ft/day)	Transmissivity (ft ² /day)	Storage Coefficient	Specific Storage (1/ft)
Surficial (Columbia) aquifer	2	50	-	0.000032
Yorktown-Eastover aquifer	22.4	3,355.8	0.00483	0.000032
Piney Point aquifer	18.8	393.8	0.00068	0.000032
Aquia aquifer	109	1,853.0	0.00055	0.000032
Virginia Beach aquifer	9	153	0.00055	0.000032
Potomac aquifer	53.8	85,008.4	0.00294	0.00000186

Model Results

Evaluation of Withdrawal Impacts:

The magnitude of the proposed withdrawal does not allow for assessment of the area of impact using VAHydroGW-VCPM. The aquifer parameters from the previous technical evaluation performed for this site in 2012, which were obtained from an aquifer test conducted at the nearby Tidewater area Central Hospital Laundry, Inc., were used to perform a two-dimensional analytical simulation to simulate drawdown due to the requested withdrawal for this technical evaluation. The drawdown in the Potomac aquifer resulting from the proposed withdrawal was calculated using a Hantush-Jacob (1955) 2-D analytical simulation for leaky, confined aquifers.

For the 2-D analytical simulations the following parameters were used:

Model Input Parameters (source: Aquifer test at Tidewater area Central Hospital Laundry, Inc. as described in previous Technical Evaluation for Cintas Portsmouth #391, 2012):

Potomac Transmissivity	=	3,376 ft ² /day
Potomac Storage Coefficient	=	1.12 x 10 ⁻⁴
Potomac Leakage Factor (1/B)	=	2.2 x 10 ⁻⁴

Withdrawal rate/Simulation Time = 50 years at 19,500,000 gallons per year (53,425 gallons per day).

Area of Impact:

The AOI for an aquifer is the areal extent of each aquifer where one foot or more of drawdown is predicted to occur as a result of the proposed withdrawal. The results from the Hantush-Jacob analytical simulation, with the parameters listed above, simulated a Potomac AOI that extends approximately 263 feet from the pumping center. A map showing the Potomac AOI is included at the end of this report. There are no existing permittees within the applicant's AOI.

Water Quality:

The regional model (VAHydroGW-VCPM) does not indicate any changes to regional flow patterns that would lead to reduced water quality.

80 % Drawdown:

The 80% criterion was evaluated using the VAHydroGW-VCPM and the Hantush-Jacob analytical simulation. A base simulation was developed to predict the impacts from all existing permits (except the applicant well) operating at their maximum withdrawal. The base simulation used the 2022 Total Permitted pumping rates and 2021 simulated Reported Use water levels as starting conditions. The base simulation was executed for 50 years. A second simulation was conducted using the 2D analytical simulation to simulate drawdown resulting from the applicant well using the parameters and withdrawal rate listed above in the *Model Input Parameters* section of this report. For the baseline simulation, the VAHydroGW-VCPM cell that contains the production well (row 112/column 66) was simulated to have a potentiometric surface of -85.6 ft-msl for the Potomac aquifer. The 2D analytical simulation simulated a maximum drawdown of 3.2 feet for the Potomac aquifer.

Subtracting the maximum drawdown simulated in the analytical simulation from the simulated water levels in the baseline VAHydroGW-VCPM simulation at the cell node resulted in a simulated water level of -88.8 ft-msl for the Potomac aquifer. This approach for simulating the potentiometric surface elevation is the most conservative for the resource. The top elevation of the Potomac aquifer at VAHydroGW-VCPM row 112/column 66 is -630 ft-msl.

The 80% drawdown requirement allows the potentiometric surface (based on the critical surface elevation calculated from the VAHydroGW-VCPM data) to be reduced to -502.2 ft-msl in the Potomac aquifer at the cell node nearest the applicant wells. Therefore, the water level in the source aquifer is not simulated to fall below the critical surface.

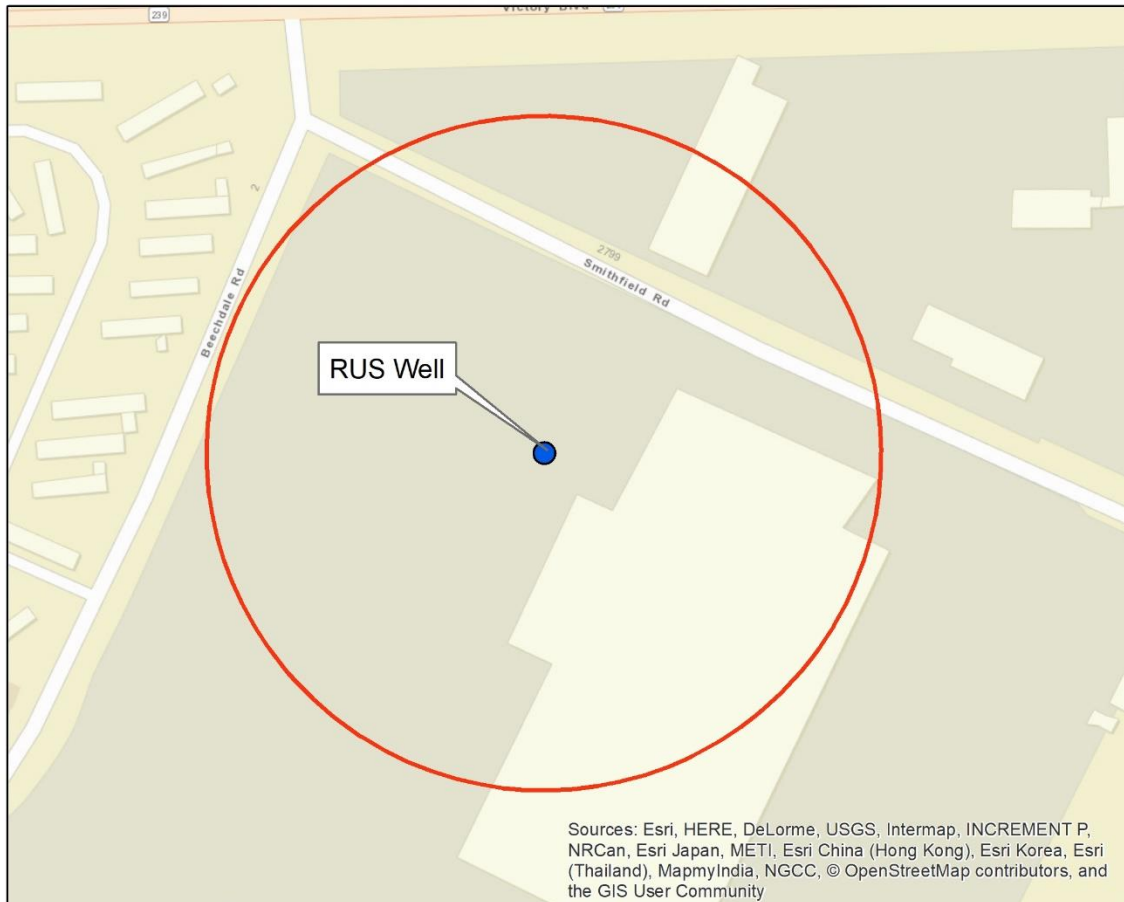
Additionally, the Potomac aquifer AOI does not contain or intersect any VAHydroGW-VCPM cells simulated to have potentiometric water levels below the 80% drawdown requirement. Therefore, this withdrawal is within the limits set by the 80% drawdown criterion.

Conclusion:

The withdrawal requested by Cintas Corporation for Cintas Portsmouth #391 satisfies the technical evaluation criteria for permit issuance.

Cintas Portsmouth #391

Area of Impact - Potomac Aquifer



● Cintas Portsmouth #391 Well

— Potomac AOI

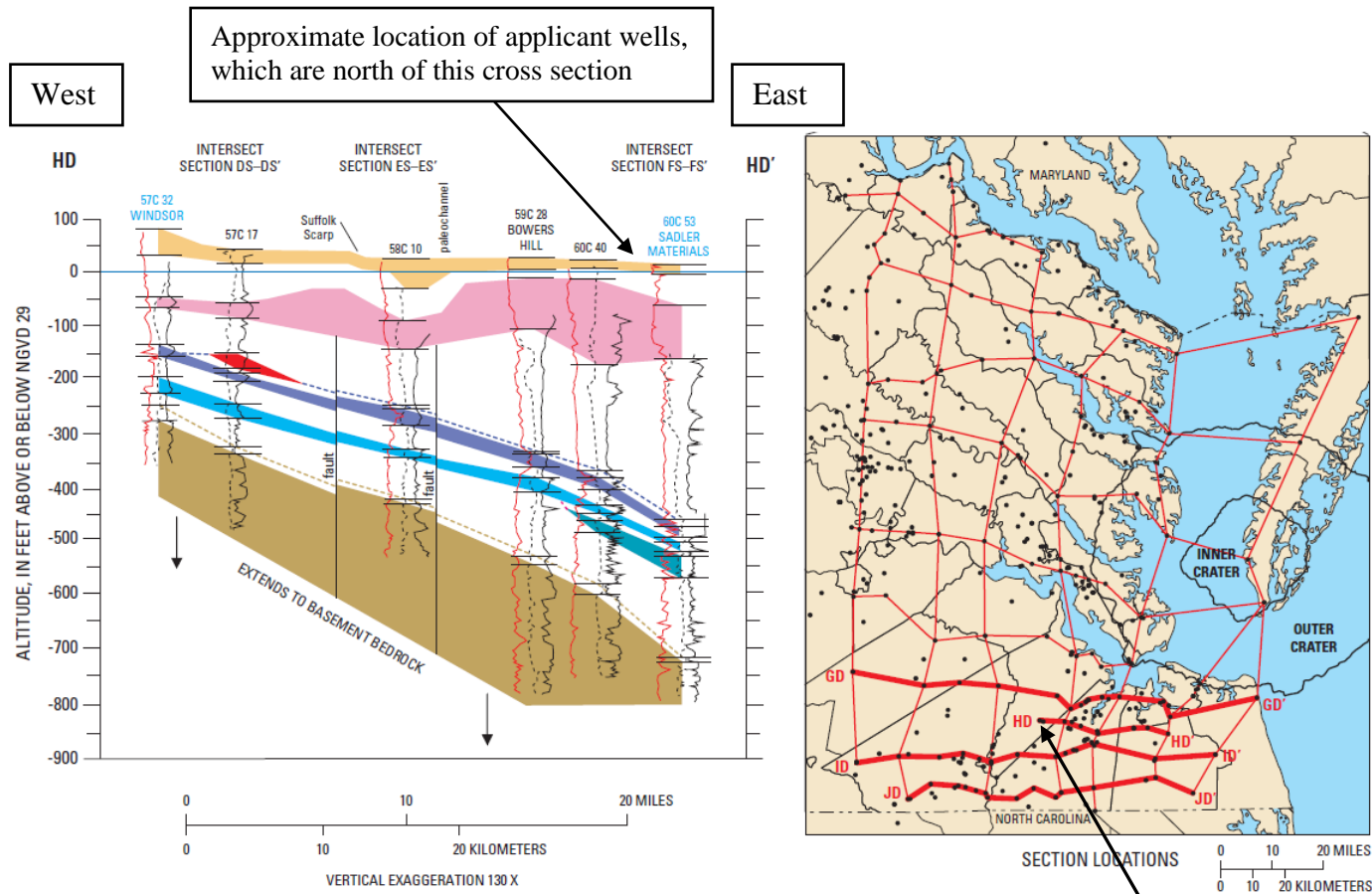


Simulated drawdown at or exceeding one foot in the Potomac aquifer resulting from a two-dimensional Hantush-Jacob simulation of 50 years at 19,500,000 gallons per year from the Potomac aquifer.

Maximum radius of one-foot drawdown (Area of Impact) occurs approximately 263 feet from the pumping center.

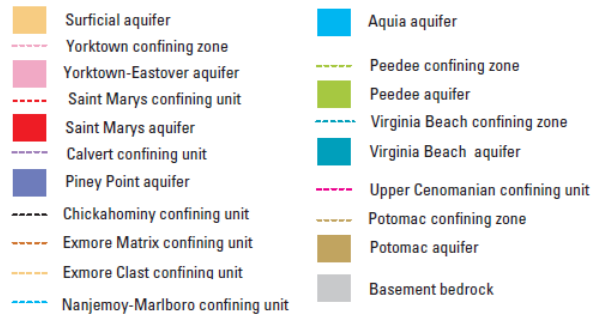
Technical Evaluation performed by
Aquaveo, LLC for the Virginia DEQ,
Office of Water Supply Planning
April 5, 2023





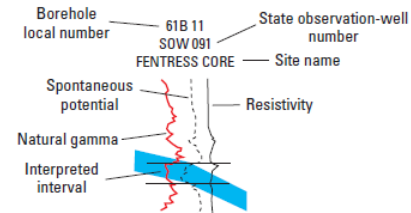
EXPLANATION

[Aquifers are shown by solid colors. Confining units and zones are shown by intervening blank areas following the sequence below. Where adjacent confining units or zones are in direct contact, the top surface of the unit or zone is shown by dashed lines.]



BOREHOLE GEOPHYSICAL LOG

[Heading in blue indicates lithologic control from detrital descriptions, and in magenta from core. Heading in black indicates only drillers logs or no lithologic information available.]



Reference location of cross-section above

Coastal Plain (2006) Cross Section HD-HD' from USGS Professional Paper 1731

ATTACHMENT 4

CINTAS WATER CONSERVATION AND MANAGEMENT PLAN

Last Updated 04/19/2023

Permit # GW0037402

**2707 Smithfield Rd
Portsmouth VA 23702**

Cintas Corporation

**Site Contact: Danny Nolan
Phone: 757-485-1100**

General Overview & System Information

Cintas continuously monitors water usage and practices water conservation. We utilize an energy service to monitor and track all our utility consumption on an interactive website. Cintas is alerted of any abnormal trends in our consumption based on historical usage. We maintain compliance with all HRSD wastewater permits and required meter readings.

Section 1: Water Savings Equipment and Processes

In May 2006 Cintas upgraded our hot water system and replaced our side arm heat exchanger that uses steam to heat our water to a direct fire contact heater. This eliminated the use of processed steam to heat our water. Cintas also installed a vent condenser on the boiler feed water system to capture all condensate vapor escaping to the atmosphere. This decreased our water and natural gas consumption by recapturing this energy.

In June 2007 Cintas replaced all industrial washers with newer more water efficient models. By replacing all washers Cintas has reduced water consumption from an average of 1.5 gallons per pound of work processed to an average of 1.0 gallons per pound.

In May 2009 Cintas started using washing formulas that utilized 10% less water to achieve the same washing quality standards. This reduced our water intake by roughly 7,500 gallons per day.

In December of 2018, Cintas upgraded the wash formulas to decrease wash times by 22.23 hours a week and water usage by 8%.

Section 2: Water Loss Reduction Program

Cintas has an extensive preventative maintenance program. As part of this program water and steam leaks, as well as faulty water and drain valves are detected early, further reducing water loss.

Through utilization of an EMaintenance system, preventative maintenance is scheduled weekly and tracked for completion and review by our Maintenance Supervisor. Daily water usage entries are compared to wash poundage and any discrepancies are reported to the Production Manager. These discrepancies are evaluated and analyzed in conjunction with our chemical vendor to identify any changes in our processing or system usage. If identified, leaks in the system are to be repaired within 24 to 48 hours provided parts and availability.

Well water usage is tracked daily and entered into the CUP system weekly. Water usage is also tracked through our chemical provider on the ACE reports, tracking our performance and alerting us to anything out of the normal. The benchmark for water usage is based on week over prior and poundage with a deviation allowed of approximately 5%.

Additionally, water discharge is tracked through HRSD and recorded daily by our waste water operator. These numbers are submitted monthly for review by HRSD and must fall within our annual waste water discharge limits.

Section 3: Water Use Education Programs

Cintas maintains a full training program for all employees. Cintas has three interactive Training on Demand (TOD) online seminars provided to our maintenance staff and production supervisors and is required to be completed annually. These TODs consist of “Water System Optimization”, “Wastewater Treatment”, and “Environmental Compliance Fundamentals.” These TODs ensure that our maintenance staff and production supervisors are equipped with the fundamental knowledge of water conservation.

Cintas provides training to all on how to report all water and steam leaks to management. The washroom employees receive specific training on how to spot open water and drain valves and report them to maintenance immediately. The plant also conducts regular safety meetings and daily plant inspections that focus on recognizing items that are potential risks, including water and steam leaks. See *Attachment 4b* for weekly washer preventive maintenance check list.

Cintas also has a computerized monitoring system that tracks the washer production throughout the workday. This allows Cintas to monitor real time usage and identify if our washers are being utilized efficiently.

Section 4: Evaluation of Potential Water Reuse Options

There is currently technology available to re-use a certain percentage of our wastewater after discharge from the industrial washers. However, this technology is currently cost prohibitive to install at our Portsmouth facility. These costs include tanks, pumps, process piping, electrical, controls, valves, and monitoring probes. A water re-use system will become a viable solution as this technology becomes more efficient and cost effective. Reuse technology would provide estimated yearly saving of \$60,000. Kemco post D.A.F. water reuse system has an estimated upfront cost of \$200,000. The reuse water could only be used on Shop Towel and Mat formulas.

Section 5: Water Use Reductions during Drought or Water Use Emergencies

Cintas maintains a good relationship with all municipalities and utilities that supply resources to the plant. Since Cintas also uses city water, we will comply immediately with any mandatory water use restrictions during water shortage emergencies declared by the local governing body or the director of Department of Environmental Quality. During any drought or emergencies there are no water reduction options possible at the facility, other than reducing product input or moving operations to another plant. Those decisions would be based on the amount of water restrictions required at the time. Our facility has the option to move processing to other facilities located in Chester VA, Baltimore MD, Landover, MD and Culpeper VA. Management and implementation of these moves would be the responsibility our Production Manager and Regional Production Director..

Conclusion

Today, Cintas is embarking on a bold sustainability journey that will take us into the future. By evaluating our operational processes and exploring new ways to reduce the natural resources we use, our ambition is to achieve Net Zero greenhouse gas (GHG) emissions by 2050.

We're extremely proud of the progress we've made so far, but our spirit of positive discontent is inspiring us to aim even higher. Through our ongoing innovation and ESG-related initiatives, we're driven to make a more positive impact on the world around us.

We know this is an ambitious vision, especially in our industry. It will require us to continually refine our environmental stewardship goals and implement new technologies into our business, many of which are in development or are just conceptual at this point. But we are up to the task.

As we've proven through the years, making improvements in our thinking and our processes not only improves our business — it has made us a good corporate citizen.

Below is the link to our Cintas 2022 ESG Report, page 34 - 39 (attached below) describe our commitment and journey to water conservation as well as our approach and strategy. Our location has requested over \$250,000 to be budgeted for fiscal year 2024 for the install and implementation of a water reuse system. This is pending review and approvals.

https://www.cintas.com/pdf/Cintas_2022_ESGReport.pdf?utm_source=internalemail&utm_medium=email&utm_campaign=CAESG

WATER STEWARDSHIP

Water is a central resource to our business and is a necessary input in one of our key business services.

Because of water's importance in our operations, we believe Cintas has a profound responsibility to be mindful, considerate, and deliberate in our interactions with this vital natural resource.

As a company, we recognize that water is already a scarce resource, so we strive to be a responsible community leader and respect our communities' right to water.

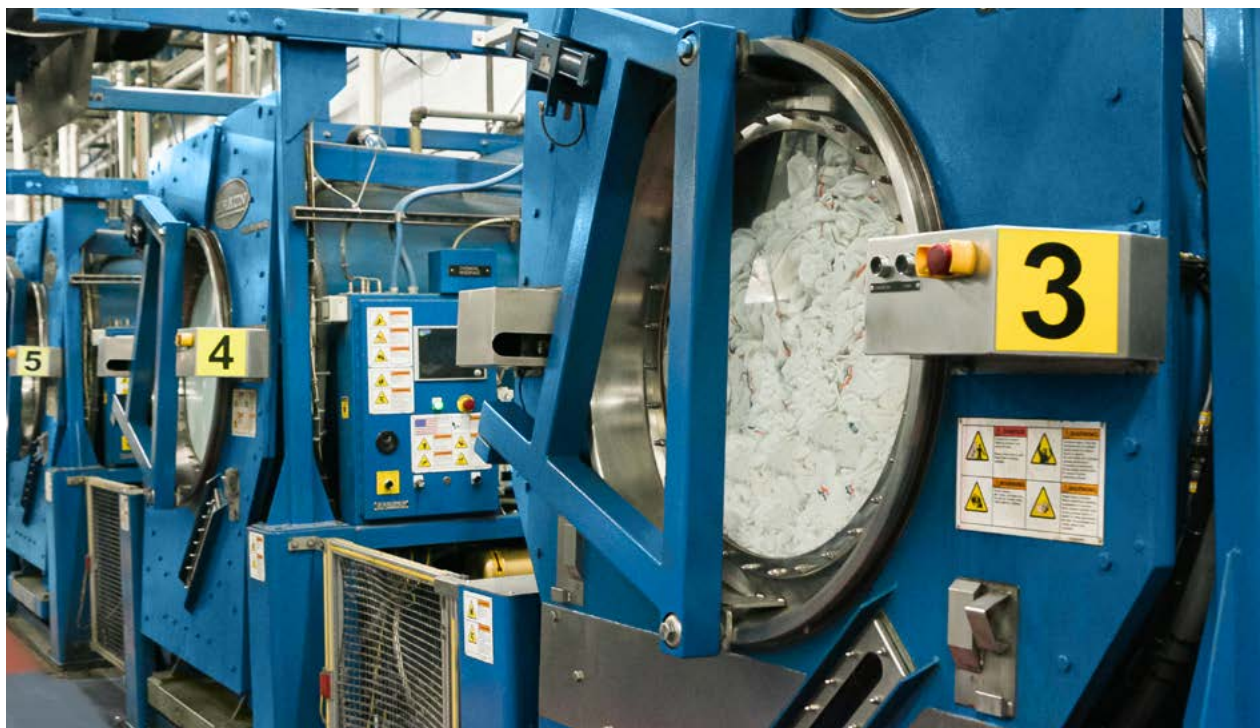
To strengthen our resolve as a water consumer, we continue to explore opportunities that help lessen our water consumption. And as a responsible water steward, we continuously monitor our operations and processes, so we discharge water back to our local communities in a sustainable, responsible manner.

WATER MANAGEMENT POSITION

Our [Water Position](#) outlines how we work to evolve our business practices that involve water, and informs our efforts to conserve water and minimize our water draw.

These opportunities include:

- Identifying further process efficiencies and water-utilization methods
- Treating wastewater in compliance with prevailing regulations
- Utilizing appropriate reuse technologies when able
- Engaging in cooperative relationships with our vendors, suppliers, and customers to identify opportunities and incorporate innovations to help manage water more responsibly throughout our value chain



These ambitions – added to our existing laundering processes, which require less water (and energy) than both traditional at-home laundering and our industry peers – help us maintain an acute perspective on our water stewardship activities.

Further, our Water Position motivates us to identify and innovate even greater efficiencies that help maximize our achievements across our company's scale, even as our business continues to grow.

CINTAS' WATER JOURNEY

We take pride in our water-conservation efforts to date. In addition to our ongoing efforts to minimize water requirements and maximize water conservation

throughout our company, we are placing focused attention on increasing our water-reuse efforts. For instance, we are seeking to build on the success that our production facilities around the [Great Lakes have had in expanding their water reuse](#).

As we aim to prioritize higher water reuse in areas of significant need, specific challenges presented by our locations in water-stressed regions provide us with opportunities to test and pilot programs. These areas include Arizona, California, Colorado, and Nevada.

The majority of our FY'22 water withdrawal originates from 14 major water basins.



APPROACH AND STRATEGY

Cintas' efforts to increase water conservation go back decades. Decreasing our dependence on freshwater has been an ongoing focus of our engineering efforts.

These efforts have also produced sound business practices by reducing our production costs and costs passed on to customers through our pricing models. The less water we use, the lower our costs – especially in areas where water prices are at a premium because of local restrictions or regulations, decreasing water availability, and/or localized conservation programming.

Our water stewardship strategy has three main components:

- Conservation and minimization of the water we withdraw
- Identification and implementation of process technologies and efficiencies that help further reduce our water use
- Implementation of water-reuse technologies

Throughout our water journey, we've fostered a culture of innovation among our employee-partners and vendors and have challenged them to modernize the commercial laundry industry.

At Cintas, we've led the way by:

- Testing, refining, and installing capital equipment systems that help us conserve water
- Utilizing evolving wash chemistry technologies and optimizing wash chemistry formulas
- Adopting common-sense behaviors that, taken together, have helped significantly reduce our costs and water consumption
- Exploring and installing broader water-reuse technologies

Water Conservation

We're proud of our legacy of water-conservation efforts, and we know our ongoing commitment has produced a positive ripple effect throughout our industry. Throughout the last few decades, we've focused conservation efforts on minimizing our draw from freshwater sources and reducing our overall water needs.

We've made significant strides in lowering the amount of water required to wash a pound of laundry without compromising our ability to meet hygienically clean certification standards (where applicable), which is critical to our customers.

We continue to seek opportunities that will help us further reduce our water consumption. Our current initiatives highlight two key areas of ongoing opportunity: process efficiency improvements and wash chemistry. We work collaboratively with our capital equipment manufacturers and our wash chemistry partners to improve our operational footprint, and to realize the combined impacts of engineering efficiencies and chemical improvements on our water requirements.



Cintas is a charter member of the Laundry Environmental Stewardship Program (LaundryESP®)

Water Reuse

We are continuing to identify ways to increase water-reuse rates throughout our production facilities. We have seen impressive reuse capabilities at a number of our facilities with full reuse technology and complete monitoring systems. Taking the cues and learnings from these locations, we anticipate identifying the start of a more expansive enterprise-wide reuse strategy in future years.

Our ability to expand and monitor our water-reuse capabilities at all our locations is an important step in our ongoing work to lessen our freshwater withdrawal and lower our overall water consumption.

WATER RISK ASSESSMENT AND WATER-STRESSED REGIONS

With our operational footprint stretching from coast to coast across the United States and Canada, we draw water from a variety of sources, including water-stressed regions. The majority of our FY'22 water withdrawal originated in 14 major water basins, with 82% of our water drawn from five sources: the Mississippi–Missouri river system (35%), the Gulf of Mexico (14%), the St. Lawrence River (17%), the North Atlantic Coast (9%), and the state of California (7%).

An FY'22 water risk assessment identified 40 Rental plants that operate in water-stressed regions of the United States and Canada, where they are experiencing high to extremely high water stress. Of our 40 processing plants located in current water-stressed regions, 17 are in Arizona, California, Colorado, and Nevada, states which have been severely impacted by historic droughts and declining water tables. At operations in these states and other water-stressed regions, we are emphasizing water-reuse technologies. As good environmental stewards, increasing our reuse efforts will also be important to help supplement our ongoing water-conservation efforts.

In the western region, legacy systems currently installed at our Las Vegas and Denver-area locations have provided contextual examples of how expanded reuse capabilities can positively affect water consumption.

As various reuse opportunities and technologies emerge and evolve, we expect to prioritize the expansion of water-reuse capabilities in water-stressed regions and identify and apply appropriate technologies in these vital areas.

MANAGING WASTEWATER AND EFFLUENTS

Both our Environmental Compliance policy and our Water Management Position outline our expectation that our field locations treat and process wastewater as necessary to comply with their specific local, state, and federal regulatory requirements.

Our wastewater treatment strategy has three main components:

- Approved chemical suppliers and wastewater-treatment equipment
- Proper maintenance of all wastewater-treatment equipment
- Wastewater testing and reporting

We have also implemented consistent treatment systems at our facilities to help our locations return wastewater to the local municipality according to all local regulations.

THE WASTEWATER-TREATMENT PROCESS

Our wastewater-treatment process is consistent throughout all processing plants in our company. It begins with the removal of lint and other solids from wastewater after a wash cycle, which generates non-toxic waste that is disposed of in landfills.

At facilities that require wastewater to be treated before it is discharged, the effluent-free wastewater is routed through an equalization tank for homogenization. It then flows through a dissolved air flotation (DAF) system for additional filtration and treatment.

Once wastewater has cycled through the DAF system and has been treated, it is discharged back to the municipal water supply. However, if the location has reuse technology installed, the treated wastewater may also be recirculated for reuse.



WATER PERFORMANCE AND DATA

Our Rental business is the overwhelming driver of our company's water interactions. Our ongoing operational review has helped us more fully identify opportunities for how we work with water. The water data in this year's report includes all of our Rental processing locations in the United States and Canada.

Water Intensity Decreases Since FY'19

As our business has continued to grow and we've processed more product volume, we've significantly invested in decreasing our business's water requirements.

With the increase in output at our processing locations, we continue to realize the impact of our efforts to reduce our overall water needs. Since FY'19, we have lowered our water intensity⁹ by almost 21% – even as revenues have grown by almost 14%.

Lowering Water Requirements

Our ongoing efforts to innovate, increase efficiency, and explore reuse opportunities have resulted in significant reductions in our water needs.

Our Operational Excellence and Reliability initiatives have helped our machines work more efficiently. With wash chemistry programmed to meet specific product load weights, our washers and dryers are more efficient – requiring less water and energy and fewer chemicals to clean, and less energy to dry. Our employee-partners continue to work with our wash chemistry and equipment vendors to target optimal product load sizes.

Since FY'19, we have lowered our water withdrawal by 9.1%, our water discharge by 9.8%, and our total water consumed by 2.8%. We're using the water we draw in more effectively and increasing the amount we return to local municipal water systems.

We expect our efforts to increase water-reuse opportunities will bear additional impact in coming years, further helping to lower our overall water withdrawal and consumption.

Water-Stressed Regions

We put significant attention on our water stewardship in areas experiencing water stress. Since FY'19, we've lessened our water withdrawn in these regions by 11.7%. In FY'22, our business withdrew 18.7% of our total water withdrawal in stressed regions, but only consumed 13.9% of our total water consumption in the same areas.

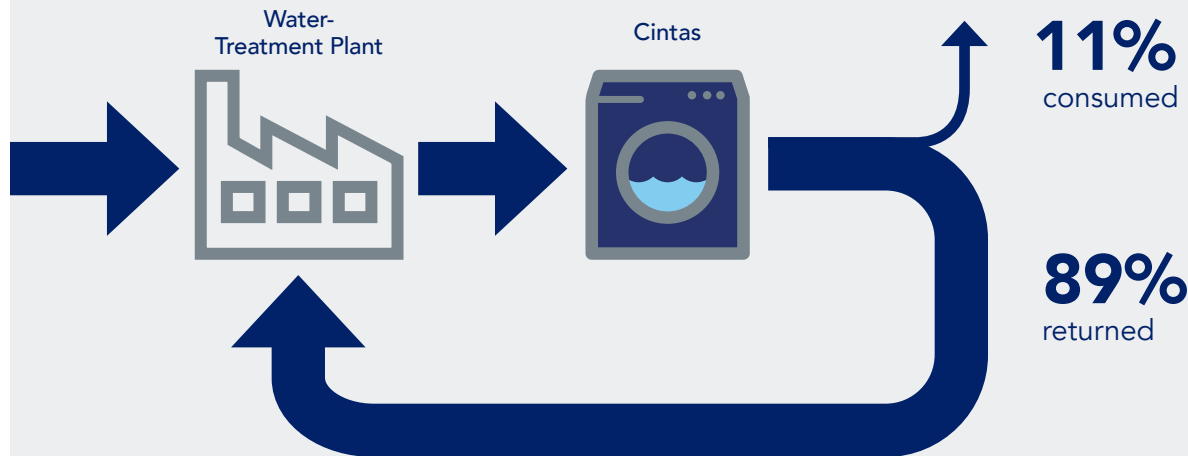
As a company, we discharge 88.9% of the water we withdraw back to municipalities, but in water-stressed regions that total is up to 91.8%.

Overall we consume 11.1% of the total water we withdraw as a company, but that total is even lower in water-stressed regions, at 8.2%.

Our efforts to optimize existing water-reuse systems and explore further reuse opportunities in water-stressed regions are contributing to our lower water requirements in these important areas.

WATER CONSUMPTION

We return to municipalities approximately 90% of withdrawn water.



WATER DATA

CINTAS CORPORATION	UNITS	FY'19	FY'20	FY'21	FY'22
Water Intensity⁷					
Water Intensity	ML/\$M	1.9	1.7	1.5	1.5
Annual Water Intensity Change	%		-12.0	-9.7	-0.4
Change from Base Year (FY'19)	%		-12.0	-20.5	-20.9
Water Withdrawal					
Total Water Withdrawal	ML	14,813	13,397	12,189	13,464
Annual Water Withdrawal Change	ML		-1,417	-1,208	1,275
Change from Base Year (FY'19)	%		-9.6	-17.7	-9.1
Stressed Regions Total Water Withdrawal	ML	2,853	2,576	2,451	2,520
Percentage of Total Water Withdrawal from Stressed Regions	%	19.3	19.3	20.1	18.7
Water Discharge					
Total Water Discharge	ML	13,281	12,010	10,898	11,975
Annual Water Discharge Change	ML		-1,270	-1,113	1,077
Annual Change in Water Discharge	%		-9.6	-9.3	9.9
Change from Base Year (FY'19)	%		-9.6	-17.9	-9.8
Stressed Regions Total Water Discharge	ML	2,704	2,441	2,319	2,313
Percentage of Total Water Discharge to Stressed Regions	%	20.4	20.3	21.3	19.3
Water Consumption					
Total Water Consumption	ML	1,532	1,386	1,291	1,489
Annual Water Consumption Change	ML		-146	-95	198
Annual Change in Water Consumption	%		-9.5	-6.9	15.3
Change from Base Year (FY'19)	%		-9.5	-15.8	-2.8
Stressed Regions Total Water Consumption	ML	148	135	132	207
Percentage of Total Water Consumption from Stressed Regions	%	9.7	9.7	10.2	13.9

SPOTLIGHT

PURSuing GREATER WATER REUSE

Our water journey has been full of advances and successes, and as a water-intensive business, we must keep innovating solutions that lessen our use of natural resources. For that reason, we continue to view our water-reuse initiatives as a tremendous opportunity to reduce our total water consumption and expand our water-conservation efforts.

OUR EFFORTS

In FY'22, our engineering and operations teams focused on ways to better quantify our existing water-reuse efforts. We installed or improved metering capabilities at many plants, and we will continue this effort in FY'23.

We also completed an assessment of each type of water-treatment and -reuse system currently utilized by Cintas to identify opportunities for improvement and expansion. Further, we continued evaluating advances in wastewater-treatment technology that could also expand the long-term potential of water reuse.

This examination of our water-reuse technologies and capabilities will be especially important as we identify opportunities to reduce our total water consumption in geographic areas experiencing significant water stress.

More than 30 years ago, Cintas started installing Dissolved Air Flotation (DAF) systems in plants. Those systems aid our efforts to reuse water. Over time,

we have worked with our vendors to standardize the design of our DAF systems and incorporate the latest technological advancements into our plants.

WHAT'S AHEAD

Optimizing our ability to reuse water and lower our overall water consumption is an important priority at Cintas.

Water reuse will continue to be a focus of our engineering, production, and plant management teams. Our Operational Excellence activities will play a central part in this work, and our customers' expectations and satisfaction will continue to be paramount.



MAXIMIZING REUSE IN THE GREAT LAKES AREA

Recently, we've had significant success in leveraging water-reuse technologies at facilities in our Rental division's Great Lakes and East Central groups.

These groups include plant locations in Northern Indiana, Michigan, Northern and Eastern Ohio, Western and Central Pennsylvania, Western and Central New York, Kentucky, West Virginia, and Maryland.

Some locations near the Great Lakes have demonstrated reuse capabilities approaching – and in some cases exceeding – 30% of their water needs, and have been ground zero for our reuse-optimization testing.

Optimizing reuse technology at these plants has allowed us to create greater efficiencies at these locations and expand their capacity while continuing to operate within permitting limits. Their success has also helped us identify optimal reuse technology integrations and use cases that will benefit our enterprise footprint. This includes our processing locations in water-stressed regions that face added challenges.

MITIGATION PLAN

DEQ GROUND WATER WITHDRAWAL PERMIT NO. GW0037402

OWNER NAME Cintas Corporation

FACILITY NAME Cintas, Portsmouth # 391

LOCATION 2702 Smithfield Road, Portsmouth, Virginia 23702

INTRODUCTION

On 9-28-2022 (Application Date), Cintas (Owner name, Facility name) submitted a Ground Water Withdrawal Permit Application to the Virginia Department of Environmental Quality (DEQ) to withdraw ground water. Ground water withdrawals associated with this permit will be utilized to

Wash soiled textiles and uniforms.

(Describe the proposed beneficial use in the space above.)

The purpose of this Mitigation Plan is to provide existing ground water users a method to resolve claims that may arise due to the impact of the withdrawal from the Cintas well field.

Predicted drawdown of water levels due to the withdrawal(s) from the Potomac
_____aquifer(s) are shown in figure(s)

Modeled impacts, as shown on the attached maps, extend beyond the boundary of the Cintas facility. Due to these findings, Cintas recognizes that there will be a rebuttable presumption that water level declines that cause adverse impacts to existing ground water users within the area of impact are due to this withdrawal. Claims may be made by ground water users outside this area, however, there is a rebuttable presumption that Cintas has not caused the adverse impact. Cintas proposes this plan to mitigate impacts to existing users and excludes impacts to wells constructed after the effective date of this permit.

CLAIMANT REQUIREMENTS

To initiate a claim, the claimant must provide written notification of the claim to the following address:

Contact Name	<u>Danny Nolan</u>
Title	<u>General Manager</u>
Permittee Name	<u>Cintas Corporation</u>
Address	<u>2707 Smithfield Road</u>
City, State Zip Code	<u>Portsmouth, VA 23455</u>

The claim must include the following information: (a) a deed or other available evidence that the claimant is the owner of the well and the well was constructed and operated prior to the effective date of the permit; (b) all available information related to well construction, water levels, historic yield, water quality, and the exact location of the well sufficient to allow Cintas to locate the well on the claimant's property; (c) the reasons the claimant believes that the Cintas withdrawal has caused an adverse impact on the claimants well(s).

CLAIM RESOLUTION

Cintas will review any claim within **five (5) business days**. If Cintas determines that no rebuttal will be made and accepts the claim as valid, Cintas will so notify the claimant and will implement mitigation within **thirty (30) business days**. If the claim is not accepted as valid, Cintas will notify the claimant that (a) the claim is denied **or** (b) that additional documentation from the claimant is required in order to evaluate the claim. Within **fifteen (15) business days** of receiving additional documentation from the claimant, Cintas will notify the claimant (a) that Cintas agrees to mitigate adverse impacts or (b) the claim is denied. If the claim is denied, the claimant will be notified that the claimant may request the claim be evaluated by a three (3) member committee. This committee will consist of one (1) representative selected by Cintas , one (1) representative selected by the claimant, and one (1) representative mutually agreed upon by the claimant and Cintas.

Any claimant requesting that a claim be evaluated by the committee should provide the name and address of their representative to Cintas. Within **five (5) business days** of receipt of such notification, Cintas will notify the claimant and claimant's representative of the identity of Cintas representative and instruct the representatives to select a third representative within **ten (10) business days**. Representatives should be a professional engineer or hydrogeologist with experience in the field of ground water hydrology. Cintas agrees to reimburse the members of the committee for reasonable time spent, at a rate prevailing in the area for experts in the above listed fields, and for direct costs incurred in administering the plan. The claimant may, at his or her option,

choose to provide the reimbursement for the member of the committee selected by the claimant and up to half of the reimbursement for the mutual representative.

Within **ten (10) business days** of selection of the third representative, the committee will establish a **reasonable deadline** for submission of all documentation it needs to evaluate the claim. Both the claimant and Cintas will abide by this deadline.

Within **fifteen (15) business days** of receipt of documentation, the committee will evaluate the claim and reach a decision by majority vote. The committee will notify the claimant regarding its decision to (a) deny or (b) approve the claim. If the claim is approved, Cintas will mitigate the adverse impacts within **thirty (30) business days** of making the decision or as soon as practical. If the claim is denied by the committee, Cintas may seek reimbursement from the claimant for the claimant's committee representative and one half of the 3rd representative on the committee.

If a claimant within the indicated area of impact indicates that they are out of water, Cintas will accept the responsibility of providing water for human consumptive needs within **seventy-two (72) hours** and to cover the claim review period. Cintas reserves the right to recover the cost of such emergency supply if the claim is denied by Cintas or found to be fraudulent or frivolous. If Cintas denies a claim and the claimant elects to proceed with the three (3) member committee, Cintas will continue the emergency water supply at the claimants request during the committee's deliberations, but reserves the right to recover the total costs of emergency water supply in the

case that the committee upholds the denial of the claim. Similarly, Cintas reserves the right to recover costs associated with the claim process if a claim is found to be fraudulent or frivolous.

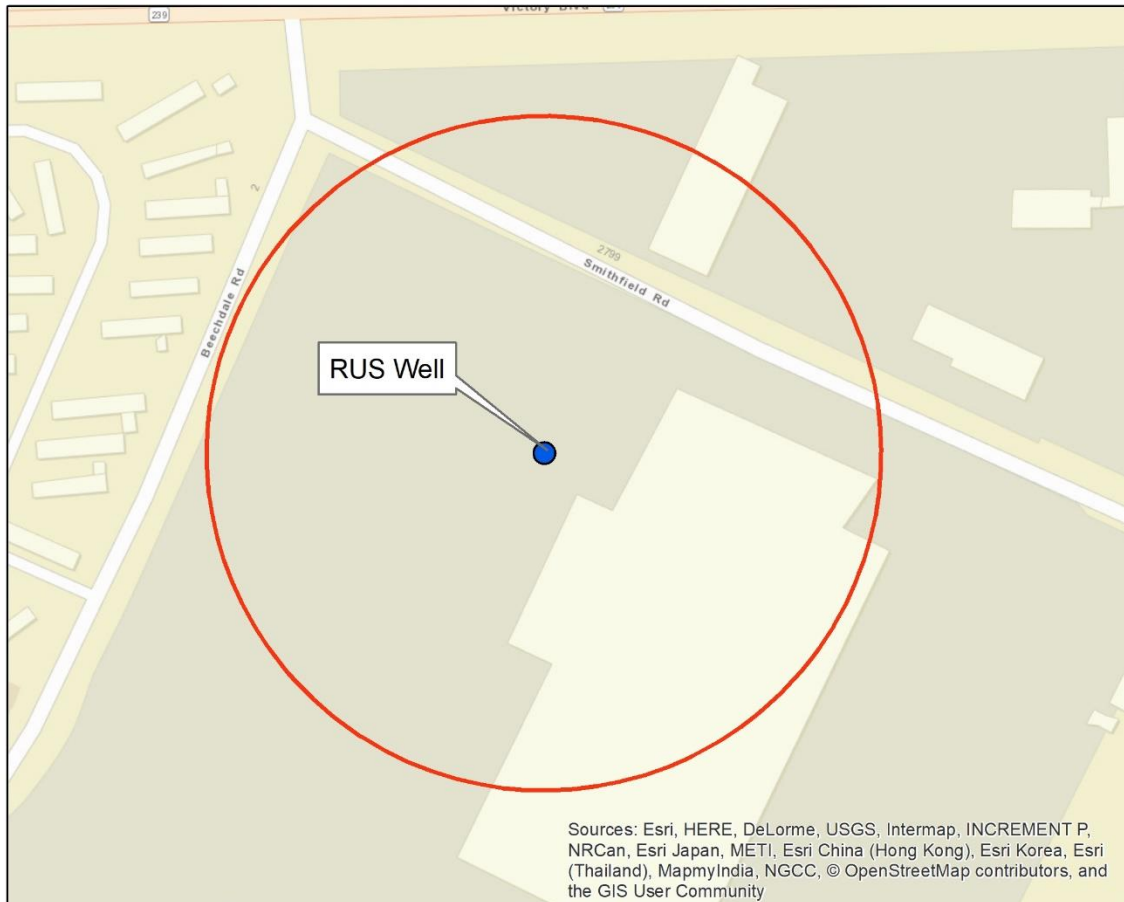
If it is determined by the committee or shown to the committee's satisfaction that a well operating under a mitigation plan similar to Cintas Plan other than those owned and operated by Cintas has contributed to the claimed adverse impact, Cintas share of the costs associated with mitigation will be allocated in proportion to its share of the impact. Such a determination shall be made by the committee after notification of the third party well owner, giving the third party well owner opportunity to participate in the proceedings of the committee.

PLAN ADMINISTRATION

Nothing in the Plan shall be construed to prevent the Department of Environmental Quality Staff from providing information needed for resolution of claims by the committee.

Cintas Portsmouth #391

Area of Impact - Potomac Aquifer



● Cintas Portsmouth #391 Well

— Potomac AOI



Simulated drawdown at or exceeding one foot in the Potomac aquifer resulting from a two-dimensional Hantush-Jacob simulation of 50 years at 19,500,000 gallons per year from the Potomac aquifer.

Maximum radius of one-foot drawdown (Area of Impact) occurs approximately 263 feet from the pumping center.

Technical Evaluation performed by
Aquaveo, LLC for the Virginia DEQ,
Office of Water Supply Planning
April 5, 2023

